

## OPTIMIZING THE BLASTOCYST YIELD: A PROSPECTIVE STUDY COMPARING TWO MULTI-CHAMBER INCUBATORS

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Introduction During the last decade, IVF outcome was improved mostly due to better culture environment including designed media and top-load incubators which ensure steady microenvironment. Manufacturers claim their material as the best providing evidence for disparity in selling prices. We compared blastocyst formation between two multi-chamber incubators from different companies. Material and methods 53 patients were enrolled from April 2017 to January 2018. Strict entry criteria were applied to avoid patient variability: female age <38 years, normal ovarian reserve (AMH/AFC), no PCOS, ejaculated sperm, antagonist regimen, >7 eggs collected, >3 mature oocytes, fertilization rate >50%. Sibling oocytes were allocated equally between G210 InviCell incubator (K-System, Origio) and Miri<sup>®</sup> incubator (Esco Medical). We used the same procedures for handling oocytes/embryos: dish (5-well and Micro-droplet culture dish, Vitrolife), media (Fert<sup>™</sup>, Sage 1-Step<sup>™</sup>, Origio), oil overlay (Ovoil<sup>™</sup>, Vitrolife), embryo assessment at day 2, 3 and 5. Statistical analyses were done by Chi-square and Student t-test for paired groups. Results Patient characteristics : female age 33.1± 2.7, basal AMH ng/ml 2.8±1.5, AFC 17.7±6.5. 722 oocytes were collected. 662 were allocated equally between the incubators. 608 oocytes were assessed as mature at day 0 or day 1 either in ICSI or IVF cases. 27 IVF and 26 ICSI were performed. Fertilization rates were similar between incubators : 83.3% in G210 vs 78.2% in Miri<sup>®</sup> (p=0.37). Day 2 top embryos were similar between incubators: 47.9% in G210 vs 43.2% in Miri<sup>®</sup> (p=0.46). Similarly at day 3: 28.9% in G210 vs 33.3% in Miri<sup>®</sup> (p=0.64). At day 5 the blastulation rates seemed higher in Miri<sup>®</sup> (61.1%) vs G210 (51.6%) although statistically non significant (p=0.43). Conclusion As the use of top-load incubators is becoming wider, several manufacturers offer their multi-chamber material with prices varying almost twofold. Our study shows that whatever the brand and regardless of the selling price, embryo culture yields similar cleavage stage quality and blastulation rate in benchtop incubators.